ENSURING THE QUALITY & ASSESSMENT

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Greetings from Finland!

Turku University, 19,554 students
Rauma Unit, 900 students
Helsinki
Minsk
THE CONTENT

- What are learning outcomes?
- Some theoretical notes behind learning outcomes
- Credit allocation example
- What to assess / evaluate
  - Methods
- Evaluation process
- Discussion and conclusions

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**Learning outcomes, EU Commission, 2015**

- Statements of what a learner knows, understands and is able to do on completion of a learning process.
- The achievement of learning outcomes has to be assessed through procedures based on clear and transparent criteria.
- Learning outcomes are attributed to individual educational components and to programmes at a whole.
- They are also used in European and national qualifications frameworks to describe the level of the individual qualification.
An AIM: Student-Centred Learning (SCL), EU 2015

- Enhances students’ autonomy and critical ability through an outcome-based approach
- The SCL concept:
  - Reliance on active rather than passive learning;
  - Emphasis on critical and analytical learning and understanding;
  - Increased responsibility and accountability on the part of the student;
  - Increased autonomy of the student;
  - A reflective approach to the learning and teaching process on the part of both the student and the teacher.

Perspective on competence
development on society level

Assessing learning outcomes
Monitoring academic standards

Perspective on learning
Perspective on teaching
### What are learning outcomes?

- Stated learning outcomes identify what the learner
  1) will know and
  2) be able to do by the end of a course
- Learning outcomes can be measured by recognizing the significant and essential learning that is achieved during a course or a program.
- Learning outcomes are usually measured as a form of competence: attitudes, knowledge and skills.
- A competence is a combination of knowledge, skills and attitudes (Mulder, 2012).

### A competence as a learning outcome

- The competence is relational to the task at hand and the context (Spencer & Spencer, 1993).
  - personal traits (e.g. motivation, learning goal orientation, self-efficacy, persistence, humor)
  - knowledge,
  - skills,
  - abilities and
  - attitudes
- (Edwards-Schachter, García-Granero, Sánchez-Barrioluengo, Quesada-Pineda and Amara, 2015).
Knowledge and good learning outcomes

- Knowledge in action is situated and performed in a personal way (Bergren, Torell & Ranglin, 2014).

- Knowledge becomes a part of personal knowing (Dreyfus 2004) via the experiences of using it (Kolb, 2015).

- An authentic learning context is a frame for a holistic understanding and usually promotes good learning outcomes (Hill & Smith, 1998; Kolb, 2015).

- From a didactical point of view theoretical knowledge should be put into action as early as possible (Bergren et al., 2014).

Attitudes and learning outcomes

- Attitudes seem to be both the determinants and consequences of learning experiences (Davies & Brember 2001).

- Learning experiences may be satisfying or frustrating: attitudes are developed and established and they enable or inhibit further learning opportunities (Volk, Yip & Lo 2003).

- Positive self-esteem seems to be a motivating factor in learning that influences achievements, including the level of self-directed learning (see Loyens, Magda & Rikers 2008).
Attitudes and learning outcomes II

- Self-directed learning is a process in which
  → individuals take the initiative, with or without the help of others,
  → in diagnosing their learning needs,
  → formulating learning goals,
  → identifying human and material resources for learning,
  → choosing and implementing appropriate learning strategies and evaluating learning outcomes.

- If learning subjects hold a personal relevance to students, this suggests the existence of intrinsic motivation (Gorghiu 2015).
- Less positive attitudes may suggest a lack of confidence in students’ ability to succeed or a lack of enjoyment of the learning activities. (Volk, Yip & Lo 2003.)

Learning in social interaction

- Knowledge and skills within the group can be shared and used by means of language (Säljö, 2000; Wertsch, 2002).

- Acquiring new knowledge and skills is not mainly a matter of learning more things, but of developing a more and more differentiated way of experiencing and understanding things.

- Learning is about discovering how to distinguish one thing from another, how to develop specific ways of seeing, doing and being in the world.” (Carlgren, 2015)
Authentic learning tasks!

- There is too few student involvement or use of their authentic experiences, when setting out the context and the task of learning (e.g. Cropley & Cropley, 2010; McLellan & Nicholl 2011).

- Facilitating learning in authentic learning contexts connected to students’ experiences supports creative problem-solving instead of learning specific facts or skills (Lin & Williams, 2015).

LEARNING IN AUTHENTIC PROJECTS
(LINDFORS 2015)

Theoretical studies

Authentic R&D projects

Authentic contexts: situated/phenomenal learning

Practical tasks: problem solving development work
Student self-assessment as a part of the learning process

- Looking at your progress, development and learning to determine what has improved and what areas still need improvement.

- Enhances students’ realistic understanding of themselves as learners while evaluating their own work and learning progress (Yliruka 2015).
  - student self-assessment / self-evaluation
  - student self-regulation and self-monitoring.

Through self-assessment a student can...

- Understand and recognize both learning intentions and success criteria.

- Use the criteria to judge what they have learnt and what they need to learn to develop their competence.

- Reflect on the learning process to ascertain how they learn best.

- Set learning targets based on what they still need to learn.
Through self-assessment a student can....

- Act on feedback received from their teachers, tutors, peers, trainers....

- To enhance motivation and commitment for the studies.
  - As a formative assessment supports learning (Torrance & Pryor 2001; Brown et. al 2015).

- Feel satisfaction based on their progress.

- Enjoy their new and developed competencies as learning outcomes.

- Students who engage in self-assessment activities are more likely to develop a feeling of empowerment and a sense of autonomy.

**Evaluation/assessment of teaching and learning are intertwined.**
A competency is more than just knowledge and skills. It involves the ability to meet complex demands, by drawing on and mobilising psychosocial resources (including skills and attitudes) in a particular context.

For example, the ability to communicate effectively is a competency that may draw on an individual’s knowledge of language, practical IT skills and attitudes towards those with whom he or she is communicating.

Monitoring of credit allocation

To allocate the intended study time.

An estimation of the time learners typically need to complete all learning activities such as
- lectures, seminars, projects, practical work, work placements and
- individual study required to achieve the defined learning outcomes in formal learning environments.

The full-time workload of an academic year is 60 credits.

One credit corresponds to 25 to 30 hours of work, in Finland 27 hours
- For individual learners the actual time to achieve the learning outcomes will vary.
Credit allocation - An example

Course: CNC-modelling as a learning environment for competence building 4 ECTs → Work load is 108 hours

Face to face studies 24 h
→ lectures 6 h
→ small groups 14 h
→ study visit 2 h
→ evaluation seminar 2 h

Individual work 83 h
→ literature 20-30 h
→ preparing the digital learning material 25-35 h
→ modelling exercises, basics 6-8 h
→ peer-tutoring 5 h
→ Modelling exercises, advanced 8-18 h
→ Portfolio 3 h
→ Evaluation of learning outcomes 1 h

Students are working in teams of 3-4!

What to assess / evaluate?

- Students’ motivation and commitment
- Students’ learning process
- The developed competence / competencies
  - Knowledge
  - Skills
  - Attitudes
- Ability to use the new competence in future contexts (transfer)
- Organisation of the course/unit
How to choose a method?

- What you want to assess - a purpose of an assessment?
  - Equally varied, sensitive, and appropriate methods to get credible and useful results
  - What are course/unit’s goals and objectives
  - The choice of assessment method is in relation to the teaching method chosen

- Quantitative or qualitative assessment
  - The type of information you need and is useful?
    - E. g. language test or a reflective portfolio

Methods of assessment

- (Diagnostic), formative and summative evaluation
- Strive towards assessment which supports development of teaching and development of learning process
- Assessment of learning → assessment for learning (Birenbaum ym 2006)
Written exam

- After (summative) or in the mid (formative) a course
- Remembering and recalling things, mastering large entities, expressing knowledge in writing
- Impractical method concerning learning
- Positive sides: easy to organize (or not); for large student numbers
- Options: pair or group exam, oral exam
- Open book exam - closer to an authentic information use situation of an expert

Essay

- At the end of a course
- A written assignment reflecting a certain topic and based on theory and research. Students utilise reference material and bring forth their own considerations and opinions, with arguments.
- Evaluating how students manage the content or how they understand the subject entity and relations between things.
- Evaluating the "touch" to knowledge: superficial or profound, stating, explaining or argumenting
- Writing skills
Oral presentation

• At the end or in the middle of a course
• Students are asked to give an oral presentation on a particular topic for a specified length of time and could also be asked to prepare associated handout(s).
• Evaluating how students structure knowledge
• Presentation skills

Assignments during a course

• Continuous assessment (formative)
  - interphase assignments and instant reports of exercises, concise writing exercises during a course
  - summaries, reports
  - problem solving tasks
• Evaluating how students have understood e.g. important concepts
• Information for teacher to orient teaching if necessary
Concept map / mind map

- During / at the end of a course
- Students map out their understanding of a particular concept or topic.
- Evaluating how the student has understood a certain entity and how the students see interrelations between things or how they apply theoretical knowledge to practical situations.
- Provides feedback to teacher on students’ understanding.

Guided learning diaries

- Students write diaries from beginning to the end of a course.
- Guided writing process, focus in analytical and reflecting touch.
- Learning diaries make learning process visible; e.g. change of conceptions during a course.
- Evaluating understanding, mastering of entities and the ability for critical and analytical thinking.
- A tool for self-assessment but also for external assessment; one may evaluate how well and thoroughly the diary was written.
Portfolio

• From the beginning to the end of a course
• Students gather study assignments in a portfolio
• Providing evidence for their achievement of learning outcomes; makes learning process visible
• Commonly incorporates a reflective commentary → a great tool for self-assessment
• Subjective and student-centred assessment

Poster exhibition

• Students make posters of a certain topic, problem or project
• Exhibition at the end of the course / posters built during the course
• Typically a groupwork
• E.g. evaluating understanding of concepts, structuring of knowledge
Skills demonstration

- At the end of a course
- Tasks in authentic contexts
- Observation
- Evaluating skills

Assessment is an iterative process, that is intended to provide useful feedback about what and how well students are learning.

**Define Learning Objectives:**

- Define - redefine learning objectives
  - **After the course students will be able to:**
    - construct clear, well-supported, and sustained arguments based on the collection, interpretation, and analysis of experimental data
    - form a hypothesis and evaluate it to justify a course of action
    - compose a written scientific report that contains well-supported argument
    - work collaboratively in a group setting
    - display leadership by keeping the team on task, while listening carefully to the ideas of others

**Select and design criteria, measures, activities and assignments...**

- Define and concretize the assessment criteria
  - Criteria should clearly relate to the learning outcomes → The goals and aims of the unit/course...

- activities/measures/assignments to do such as:
  - gauge grasp of knowledge, concepts, and skills
  - demonstrate critical thinking, problem-solving, and decision-making
  - encourage choice, creativity, and reflection
  - promote interpersonal skills (peer, group, and teamwork)
  - support personal development/identity exploration
  - encourage practical skills
Implement: Create and Use Assessments

AN EXAMPLE
Everyday technology in phenomenal learning context, 4 ECTS

- A questionnaire: Student teachers’ attitudes to technology (automation, electronics, PATT)
- Lectures + workshops
- AN ESSAY how well the theoretical knowledge is grasped.
- Practical technology workshops at local schools designed and tutored by a team of student teachers
- Reflective group portfolio → self-reflection
- Evaluation seminar: sharing and reflecting experiences → future steps

Analyze learning outcomes

- To what extent students have achieved the stated learning objectives?
  - To what degree did students learn what was intended?
    - improvement across drafts?
    - improved performance over time?
    - pre-post conceptual or knowledge checks?
    - mastery of skills?
    - achievement of core competencies?
    - ability to perform specific tasks?
  - The scale?
Identify and evaluate strengths, weaknesses and gaps

- Consider various perspectives: teachers, students, peers, tutors.
  - What worked well?
  - What methods, activities, strategies, materials, etc., could have been improved?
  - What parts of the course or instruction should I retain?
  - What parts should I rethink or replace?
  - Feedback for students?
- Validity
  - Did a method assess what it claims and did it lead to valid inferences usable in decision making.
    - Higher order thinking skills versus memory test
- Reliability
  - The capacity of an assessment method to perform in a consistent and stable way

Make decisions for the future!

- What should be changed in the next iteration of the course or program?
  - objectives of the course
  - learning outcomes
  - assessment measures
  - teaching strategy
  - course elements / activities
Assessment and evaluation results can be used...

- As a certificate that the student has the basic level competence and can be awarded the credits

- In determining the quality of students’ learning outcomes

- As a reference for feedback
  - Giving feedback to students is essential in developmental evaluation

- As a tool in developing the course curriculum/syllabus:
  - unit goals/objectives,
  - content,
  - learning media and
  - environment
  - assessment/evaluation

THANK YOU
GOOD LUCK!
References

- Will be added...asap!